

WHAT IS CLAIMED IS:

1. A step motor comprising:
a rotor having four magnetic poles;
a first magnetic pole magnetically excited by a
5 first coil;
a second magnetic pole magnetically excited by a
second coil; and
a third magnetic pole magnetically excited by the
first coil and the second coil;
10 wherein a gap D between the third magnetic pole
and the rotor is larger than a gap d between the first
magnetic pole and the rotor and the gap d between the
second magnetic pole and the rotor, so that a magnetic
attraction is generated between a pole of the rotor and
15 the first magnetic pole and between another pole of the
rotor and the second magnetic pole.
2. The step motor as claimed in claim 1,
wherein:
20 the rotor has a shape of cylinder;
a stator having a plan view of substantially
lateral U-shape is arranged to face a circumferential
surface of the rotor;
the first magnetic pole and the second magnetic
25 pole are provided on both ends of the stator; and
the third magnetic pole is provided in the center
of the stator.
3. The step motor as claimed in claim 2,
30 wherein:
the first coil is provided between the first
magnetic pole and the third magnetic pole and the
second coil is provided between the second magnetic
pole and the third magnetic pole; and
35 the stator includes protrusions for preventing
displacement of the first coil and the second coil.

4. A camera driving mechanism comprising:
a step motor;
an engagement pin that is connected to a rotor of
the step motor and performs a turning motion within a
5 given range; and
an engagement hole that is engaged with the
engagement pin and includes a sector that moves between
a position to close an opening for image capturing and
another position to open the opening for image
10 capturing, in accordance with the turning motion of the
engagement pin,
the step motor includes:
a rotor having four magnetic poles;
a first magnetic pole magnetically excited by a
15 first coil;
a second magnetic pole magnetically excited by a
second coil; and
a third magnetic pole magnetically excited by the
first coil and the second coil;
20 wherein a gap D between the third magnetic pole
and the rotor is larger than a gap d between the first
magnetic pole and the rotor and the gap d between the
second magnetic pole and the rotor, so that a magnetic
attraction is generated between a pole of the rotor and
25 the first magnetic pole and between another pole of the
rotor and the second magnetic pole.

5. The camera driving mechanism as claimed in
claim 4, wherein the sector includes a shutter blade
30 and a diaphragm blade.